



# T.M. Sperry Herbarium (KSP)

Department of Biology  
Pittsburg State University

## 2018 Annual Report



FROM THE CURATOR, DR. NEIL SNOW

### BRIEF OVERVIEW OF 2018

Our big news for 2018 is having received funding from the National Science Foundation (NSF) for a grant entitled *Expansion and Curation of the T.M. Sperry Herbarium at Pittsburg State University to Enhance Teaching, Research and Outreach in the 21st Century*. The grant amount of \$307,203 will allow us to obtain new herbarium cabinets, move to a more suitable and larger space in Hartman Hall next door, and will support a graduate student and several undergraduate students working in the herbarium to assist with data basing, specimen preparation, and digitizing. Many thanks to NSF for its generous support, which received press coverage in Pittsburg, Joplin and PSU.

<https://news.pittstate.edu/2018/09/nsf-awards-psu-herbarium-307,000.html#.W5Ow1-hKiM9>

We participated in WeDigBio in October, a community-outreach event coordinated by NSF to expedite the number of specimens data based. Local media such as KOAM television, *The Joplin Globe*, and *Pittsburg Morning Sun* provided coverage, for example:

<https://news.pittstate.edu/2018/10/a-data-base-party-yes,-please..html#.W9IPYmhKiM9>

### PART I: TEACHING AND EDUCATION

Congratulations to **Samantha Young Pryer**, who defended her M.S. thesis in May, entitled: *Floristic Survey of Crawford and Cherokee Counties in Southeast Kansas: An Evaluation of Change of Five Decades*.

Congratulations also to **Karisa Boyer**, Joplin High School, for successfully defending her thesis, entitled:

*The Importance and Societal Impacts of the Curation and Digitization of Natural History Collections, with Particular Reference to the Fish Collections at Pittsburg State University*. Karisa contributed greatly to curation in the Sperry Herbarium with specimen (mounting, data basing, digitizing) in 2017 and 2018.

**Jiawei Xu** began her masters degree research at PSU with support from an NSF assistantship. Her thesis project plans to study variation in leaf anatomy of New Caledonian *Syzygium*.

*Specimen Preparation* — Rachel Wood and Ramie Unruh each did an 1 credit independent study in the herbarium; whereas Jiawei's was 3 credits 602-28.

**Sara Kernodle** began black and white illustrations of new species of *Eugenia* from New Caledonia. **Claire Cook** began researching the archives in Axe Library on Dr. Sperry's collection activities in the Democratic Republic of the Congo from 1951-52, as part of the Marshall Plan for Belgium.

### PART II: RESEARCH (STUDENT AUTHORS UNDERLINED)

Byng, J.W., N. Snow. 2018. Key and checklist of *Eugenia* (Myrtaceae) from Congo (Brazzaville). *Phytotaxa* 357: 159–163.

Gâteblé, G., L. Barrabé, G. McPherson, J. Munzinger, N. Snow, U. Swenson. 2018. One new endemic plant species on average per month in New Caledonia, including eight more new species from Île Art (Belep Islands), a major micro-hotspot in need of protection. *Australian Systematic Botany* 31: 448–480.

Pryer, S.Y., N. Snow. Numerous new state records of vascular plants for Kansas. Poster, BOTANY 2018, Rochester, MN

Pryer, S.Y., N. Snow. 2018. Floristic survey of Crawford and Cherokee Counties, Kansas: A report of known taxa, including 49 state records. Poster, Kansas Natural Resources Conference, Manhattan.

Snow, N. 2018. The Kansas and Regional Reference Collection: A community-wide tool at Pittsburg State University to expedite and authenticate identifications of vascular plants. Poster, Kansas Natural Resources Conference, Manhattan.

Snow, N. Systematics of *Gossia* (Myrtaceae) in New Caledonia. Poster, BOTANY 2018, Rochester, MN

Snow, N., M.W. Callmander, J.W. Byng. In press. Studies in Malagasy *Eugenia* (Myrtaceae) – VI: A new species with large leaves and verrucose fruits. *Systematic Botany* 44 (1):

Sur, G., R. Keating, N. Snow, E.A. Stacy. 2018. Leaf micromorphology aids taxonomic delineation within the hypervariable tree species *Metrosideros polymorpha* (Myrtaceae) in Hawaii. *Pacific Science* 72(3): 1345–361.

Thomson, S.A, R.L. Pyle + 182 other authors [incl. N. Snow]. 2018. Taxonomy based on science is necessary for global conservation. *PLoS Biology* 16(3): 1–12. 14 Mar 2018. <http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.2005075>

Snow, N., P.M. Peterson, K. Romaschenko, B.K. Simon. 2018. Monograph of *Diplachne* (Poaceae, Chloridoideae, Chloridae). *PhytoKeys* 93: 1–102. <https://phytokeys.pensoft.net/articles.php?id=21079>

Snow, N. 2018. Review of: *Plant Families of the World* by M. J. M. Christenhusz, M. F. Fay and M. W. Chase. Royal Botanic Gardens, Kew. *Systematic Botany* 43: 835.

Snow, N. 2018. Review of: *Aquatic Dicotyledons of North America: Ecology, Life History and Systematics* by D.H. Les. *Systematic Botany* 43: 836.

**RESEARCH-RELATED TRAVEL** – Jiawei Xu (below right) and Alexandra Perez (left) accompanied Snow to the Missouri Botanical Garden (MO) in October for Xu's MS thesis project. There they sampled leaves from specimens of *Syzygium* for comparative studies and

learned more about the extensive holdings at MO, and were able to use and tour the Peter H. Raven library.



### PART III: OUTREACH

**BIOTA of North America Project (BONAP)** – As part of ongoing collaboration with Dr. John Kartesz to supply and correct distributional records of plants in North America at the state and county levels, we submitted a state record (*Erysimum asperum*; image below) and eleven county records (4 from KS, 1 from MO, 3 from MT, 2 from OK, and 1 from TX). Information supplied to BONAP includes specimen collector(s) and number, in addition to the Sperry Herbarium barcode number. Upon publication, Pryer's thesis will add over 30 additional state records and over 260 county records for Kansas, a significant number, and considerably beyond what we anticipated.



## PART IV: BY THE NUMBERS

Categories with the red asterisk include student work or assistance.

**Herbarium size:** ca. 63,945

This represents a slight decrease from 2017 due to deaccessions and a relatively low rate of collecting.

Specimens collected: 21

Specimens annotated: 3135

\*Specimen labels made: 5400

\*Specimens mounted: 87

Specimens added to KS and Regional Reference Collection: 156 (total now of ca. 1345)

\*Specimens databased: 13,248 (> 55% by students; total ca. 17,740)

Specimens barcoded: 5566 (total: 29,540)

\*Specimens digitally imaged: 188 (total: 4100)

\*Specimens conserved: 31

Specimens geo-referenced: 184

Specimens deaccessioned: 663

Specimens received on loan for research: 354

Specimens sent to KSP as a gift: 0

Specimens sent from KSP as gift: 61 (to Florida State Univ., Missouri Botanical Garden, KS State University)

Specimens on loan to KSP returned: 8

KSP specimens returned from loan: 0

KSP specimens sent on loan: 0

KSP specimens used in teaching: ca. 670 (Principles of Biology II (15); Plant Taxonomy (ca. 350); Wetland Plants (305). Several herbarium specimens were used for identification quiz in Biology Bowl in February.

KSP specimens sent as DNA samples: 12 (6 samples of four grass specimens (genera *Achnatherum*, *Cinna* and *Trisetum*) went to Dr. Maria Vorontsova, Royal Botanic Gardens in May; 4 samples of *Helianthus salicifolius* were sent to Dr. Marcin Nowicki at the Institute of Agriculture, Entomology and Plant Pathology at the University of Tennessee-Knoxville in August; 2 samples of *Vernonia arkanasana* sent to Dr. Vicki Funk at the Smithsonian Institution.

External requests for identifications: 2

Estimated backlog of vascular plants: 16,810

Data base fields corrected in Symbiota: 3655 (mostly incorrect entries of dates by the curator)

Number of books added to collection: 25

External requests for identifications or information: Dr. Loriann Biederman, Iowa State Univ., requested specimen information on *Platanthera praeclara*. Dr. R. Walter requested information on *Penstemon eatonii* from AZ. Snow provided input to Dr. Dror Melamed from Tarom Innovative Technologies in Israel, based on an exceptionally large specimen of the grass species *Diplachne fusca* he found in a wetlands area in that country. Its taxonomic affinity was uncertain. In April, Mr. Bill Jordan in Madison, WI, formerly of its Arboretum, inquired about collections made by Ted Sperry.

Special thanks to Dr. Mark Mayfield (below) of Kansas State University for annotating many specimens of Euphorbiaceae.



## Additional notes

Families curated during 2018: Acanthaceae, Aceraceae, Amaryllidaceae, Bignoniaceae, Brassicaceae, Campanulaceae, Euphorbiaceae, Fabaceae (in progress), Iridaceae, Lamiaceae, Oleaceae, Potamogetonaceae, Sapindaceae, Tamaricaceae, Verbenaceae, Violaceae, and ferns and fern allies.

KSP databased and digitized ca. 220 voucher specimens from Peru for a project completed in 1995.



Symbiota Data Base Summary for Vascular Plants: Of the ca. 17,750 specimens data based thus far, only five US states currently are unrepresented (CT, DE, HI, MY, and RI). Approximately 95% of the specimens are from the US, including 75.0% from KS, 6.2% are from OK, 4.7% from MO, and 0.6% from AR. KSP has specimens from 28 other countries. A total of 53% are georeferenced and 89% are identified to species. Approximately 810 genera are in the database, 2,238 species, and 2,434 taxa total.

## PHOTO GALLERY



Top: Students participating in WeDigBio in October. Middle left: Sada Kernodle illustrating a new species of *Eugenia* from New Caledonia. Middle right: Students working herbarium in Fall semester. Lower left: Ryan McGinty (L) and Morgan Smith (R) at WeDigBio in October. Lower right: Faculty and grad students celebrating Sam Pryer's MS thesis defense in May.